CHIKMAGALUR FOREST DIVISION.

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Notification dated 30th October 1952.

Subject:—Unclaimed security deposit—Savings Bank Pass Books.

It is hereby notified for the general information of the public that the undermentioned Savings Bank Pass Books previously pledged as security, remain unclaimed even though the period and purpose of such pledging is long over.

The original depositor or any person claiming the right to such deposit may prefer his claim to this office within three months from the date of this notification, failing which the Pass Books will be sent to the Treasury Officers concerned for taking such action as provided in the Saving Bank Rules.

Sl. No.	Account No.	Name of Treasury	Name of Depositor	Designation and address	Amount outstanding
			(*a*) Dead Accounts.		
			Sriyuths—		Rs. a. p.
1	910	Chikmagalur District	Venkata Rao	Mutsaddi, Belagamba ...	64 1 4
2	505	Do do	....	Forest Ranger, Chikmagalur ...	72 2 10
3	155	Tarikere Taluk	Krishnappa, ...	Tarikere, Forest Contractor ...	132 2 8
4	506	Mudigere Taluk	Yelemale Ahmed Beri ...	Yelemale	67 5 0
5	589	Do	Anantha Kamath	Koppa	5 5 6
6	626	Do	A. Bavaya Kunbi	Mudigere	12 13 8
7	1008	Chikmagalur District	Puttiah	Tarikere	0 4 0
8	482	Mudigere Taluk	A. M. Mallappa	Aldur	2 10 7
9	706	Koppa	S. M. Peeran Bijali ...	Yedehalli	19 7 3
10	118	Tarikere	Fukruddin	Lakkavalli	0 12 6
			(*b*) Uncurrent accounts.		
1	1526	Koppa	Magera Dara	Haladi Huyyar Village, Kundapur	27 0 3
2	1313	Koppa	N. A. Linganna Heggade ...	Nemmar	64 7 2
3	4608	Chikmagalur District	C. Baji Sab	Arsikere	500 0 0

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K. M. SUBBAYYA *D.F.O.*

UNIVERSITY OF MYSORE

Amendment No. 142.

(*Calendar Volume I of 1947-48*).

THE FOLLOWING IS THE REVISED SYLLABUS IN PHYSICS FOR THE B.Sc. HONOURS DEGREE EXAMINATION.

Properties of Matter.

General.—Units and dimensions, Dimensional Equations. Accurate measurement of mass, length and time. Errors of observation; mean,—standard deviation. Probable error—method of least squares.

Gravitation.—Simple pendulum—Bifilar suspension—Reversible pendulum—corrections. Gravity surveys, Eotvos balance.

Gravitation constant; its determination by different methods. Mean density of the earth.

Kepler's laws and deduction of Newton's law of Gravitation therefrom and *vice versa*.

Masses of celestial bodies (binary systems).

Elasticity.—Hooke's law—Elastic constants and their mutual relationship. Determination of the constants by standard methods.

Stability of loaded pillers. Flat and non-flat spiral springs. Bridgman's work at high pressures. The plastic state. Hardness tests.

Surface Tension.—Determination of surface tension and angle of contact (standard methods). Cylindrical films. Theories of capillarity. Spreading of liquids on liquids.

Viscosity.—Viscosity of liquids: determination by Poiseuille, rotating cylinder, oscillating disc and Stoke's law methods.

Andrade's theory of liquid viscosity. Viscosity of gases; methods of Searle Anderson and Rankine.

Low Pressures.—Production and measurements of low pressures.

Sound.

Combinations of S.H.M. energy of Vibration.

Damped vibrations. Forced vibrations—Characteristics. Resonance.

Wave—motion; Progressive and stationary waves. Velocity of waves in (*a*) a gas (*b*) rod (*c*) extended solids (longitudinal and transverse).

Reflection, Refraction, Interference and Diffraction of sound.

Photography of sound waves.

Fourier's Theorem and analysis of wave forms. Theory of vibration of plucked, struck and bowed strings. Wolf note.

Transverse vibrations of bars—special cases. Tuning fork and its temperature coefficient.

Vibrations of rectangular and of circular membranes (symmetrical and non-symmetrical), and of plates (elementary). Experimental determinations of the velocity of sound in solids, liquids and gases.

Acoustic impedance—Application of the theory of impedance to (*a*) resonators, (*b*) Pipes—closed, open and partially stopped. (Flute and clarionet) (*c*) acoustic filters—low, high and band frequencies. Simple cases of measurement of acoustic impedance.

Analysis of sound—Measurements of (*a*) frequency, (*b*) amplitude, Calculation of velocity, pressure and intensity.

Supersonic waves—production, properties, and measurement of wavelengths in liquids.

Acoustics of buildings. Optimum reverbaration. Absorption coefficients of materials—determination and uses.

Musical scales.

Sound ranging. Sound signals; direction-finding; echo-sounding and echo-prospecting.

Recording and reproduction of sound—mechanical, optical and electro-magnetic methods.

Noise and its measurements.

Heat.

Thermometry—(1) Mercury-in-glass. (2) Gas (3) Resistance and (4) Therms—electric. Errors and corrections.

Specific heat of solids and gases at high and low temperatures. Kinetic theory of gases. Pressure, distribution of velocities and experimental verification. Mean free path phenomena. Viscosity and thermal conductivity of gases.

Equation of state for gases. Standard cases.

Change of state. Measurement of latent heat.

Thermal expansion of solids, crystals and liquids. Gruneisen's Law.

Thermal conductivity, general theory. Experimental methods of determination for solids, liquids, gases and crystals. Law of Weedemann and Franz.

Thermodynamics—First Law, Mechanical equivalent of heat; specific heats of liquids.

Heat engines, Power cycles, second law of thermodynamics. Maxwell's equations and applications.

Joule-Thomson effect—Theory and experiment. Correction to the gas scale.

Production and measurement of low and very low temperatures (including adiabatic de-magnetization method).

Radiation—Black body radiation. Kirchhoff's Law. Stefan's Law-Derivation and experimental verification.

Spectral distribution of energy—Rayleigh—Jeans theory Wien's displacement laws; Planck's theory and determination of Planck's constant.

Radiation Pyrometry—Surface temperatures of sun and stars. Theories of specific heats of solids—Dulong and Petit law, Einstein's and Debye's theories—Verification and validity of theories. Specific heats of gases—Application of quantum theory to diatomic molecules.

Elements of meteorology.

Light.

Geometrical Optics.—Reflection and refraction at plane and curved surfaces. General theory of image formation. Cardinal points. Application to actual systems of lenses. Apertures and their effects. Abreation—spherical and chromatic. Defects of images. Objectives and eyepieces. Testing of lenses, Photometry. Illumination and vision. Velocity of Light.

Physical Optics.—Wave theory and Corpuscular theory. Interference—Fresnel's work. Interferometers: Standard types. Accurate determination of wave-lengths. Hyperfine structure. Stellar diameters. Stationary waves and Lippman's colour photography, Rectilinear propagation; Fresnel's theory. Kirchhoff's formulation. Fresnel and Fraunhofer diffraction Phemonena; standard cases. Babinet's principle. Halos. Echelon: transmission and reflection types. Concave grating. Resolving power of various optical instruments. Double refraction and polarisation. Electro-magnetic theory of light. Fresnel's formulæ of reflection and refraction. Brewster's Law. Crystal optics. Fresnel's normal surface Ray surface. Huyghens's construction for double refraction. Internal and external conical refraction. Angle of the cone. Interference of polarised light. Rings and crosses. Babinet's compensator. Optically active substances. Dispersion. Sellmeier's theory and Lorentz' theory. Experimental work on dispersion. Absorbing media.

Magnetism and Electricity.

(Vectorial methods may be employed wherever possible)

Electrostatics.—Frictional electricity. Electroscopes and electrostatic machines. Law of force between charges. Gauss's theorem. Equations of Poisson and Laplace. Dielectric media; boundary conditions, energy of the electrostatic field. Condensers. Coefficients of Potential, capacitance and induction. Energy of a system of charged conductors. Electrostatics screening, Attracted discelectrometer, quadrant electrometer. Method of images, Method of inversion. Conjugate fuctions. Spherical harmonics. Practical applications.

Magnetism.—Law of force between magnetic poles. Mutual action between two short magnets. Lines of force. Potential. Gauss's theorem. Magnetic shell. Magnetic induction. Boundary conditions, energy density in a magnetic field. Magnetic sphere, cylinder, spherical shell and cylindrical shell in a uniform magnetic field. Magnetic shielding. Electromagnets. Magnetic circuits.

Para, dia and ferromagnetism. Molecular theory. Magnetic alloys. Terrestrial magnetism—accurate measurement of the magnetic elements, Magnetism of the earth, its causes and variations.

Current Electricity.—Ohm's law. Electronic theory Kirchhoff's laws. General theory of Net works. Wheatstone's net. Accurate measurements of resistances. High and low resistances. Vernier potentiometer. Primary and secondary cells.

Magnetic effect of an electric current. Ampere's law. Equivalent magnetic shell. Vector potential. Helmholtz tangent galvanometer—Force on a current in a magnetic field. Moving coil galvanometer, Ammeters and Voltmeters. Force between two circular currents. Ampere balance, electrodynamometer.

Electromagnetic induction. Ballistic galvanometers—damping. Grassot flumeter. Mutual and self-inductance. Calculations in standard cases. Dynamos and motors. Three pace generator. Induction motors. Induction coil. Transformer. Thermo-electricity.

Alternating Currents.—L.C.R. circuits. Impedance, power factor. Series and parallel resonance. Cathode ray oscillograph. Methods for measuring mutual and self inductance. A.C. Bridges. Theory of inductively coupled circuits. High frequencies, skineffect. Air core transformer.

Elements of Wireless.—Thermionic tubes, diodes and triodes. Equation of the characteristic. Triode as a detector, amplifier and oscillator. Simple types of broadcast transmitter and receiver. Propagation of electromagnetic waves along wires. Lecher wires.

Units.—Systems of units.

Modern Physics.

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Spectroscopy.—General and Historical.

Bohr's theory of the hydrogen atom; Effect of finite mass of nucleus.

Elliptic orbits-Sommerfeld's theory.

Quantum numbers; space quantisation. Series in alkalis and alkaline earths; spinning electron; Doublet structure, Vector model.

Two Electron spectra; Pauli's principle and the periodic table Calculation of terms for two electrons-R-S and J.-J. Couplings Multiplet structure; Land interval rule. Intensity rules.

Zeeman Effect; Paschen - Back Effect. Lande's 'g' formula. Stark Effect (Elementary).

Hyperfine structure - Nuclear spin; Isotopic Effect, Zeeman and Back-Goudsmit Effects in H. F. S.

Band spectra of diatomic molecules.

Bands, edges, sequences, progressions.

Rotation, Vibration and Electronic energy levels (and Relationships).

Isotope effect. Franck - Condon Principle. Predissociation, Energy of Dissociation Phenomena.

Infra - red spectroscopes.

Scattering of light and the Raman Effect: Experimental methods and elementary theory.

Discharge of Electricity through gases.—Determination of specific charge (e/m) for the electron, Determination of electronic charge. Positive rays. Isotopes. Mass spectrographs.

Elements of X-rays.—Production and Properties.

Compton effect, X-ray spectra. Moseley's work, Bohr-cester diagrams, fine structure.

Photo-electricity.—Einstein's Photo-electric equation, verification; simple applications.

Radioactivity.—Detection and measurement. Law of radio-active disintegration. Age of minerals.

Scattering of particles, structure of the atom.

Nuclear disintegration and artificial radioactivity, production of high energy particles.

Eucleus-General characteristics.

Cosmic rays, and mesons.

Mathematical Physics.

1 *General Dynamics.*—D'Alembert's principle—Lagrange's equations of motion of the first kind–Lagrange's equations of motion of the second kind (Generalized co-ordinates).

The Hamiltonian—Canoncial equations. Hamilton's principle of least action. Canonical transformations. The Hamilton—Jacobi partial differential equation.

2 *Mechanics of Deformable bodies.*—Small deformations Analysis of stress and strain by tensor methods. Strain—energy function. Isotropic and ælotropic bodies. Equations of motion of an elastic medium.

3 *Mechanics of fluids.*—Equilibrium of fluid bodies. Fundamental equations of hydrodynamics—Lagrange equations and Euler's equations. Bernoulli's theorem—Irrotational motion. Velocity Potential. Vortex motion—Kelvin theorem, Helmholtz vortex theorems. Flow of fluid about an obstacle—Lift force. Kutta—Joukowski formula-Magnus effect. Surface waves on a liquid. Equations of motion of viscous fluid—Application to flow through a capillary—Stoke's problem (motion of a sphere through a viscous fluid);

4 *Statistical Mechanics (Classical Statistics).*—Probabsity and Entropy—Distribution function in an ideal gas Phase space—Liouville's theorem--Maxwell Boltzman energy distribution—Applications—(1) Perrin's work; (2) Distribution of velocity in an ideal gas; (3) The Boltzmann and gas constants. Law of Equipartition of Energy and its application to the specific heats. Fluctuations.

5 *Quantum Statistics.*--Bose—Einstein statistics—Application to a Photon gas (radiation). Fermi-Dirac statistics—Theory of the electron gas—Thermal and Electrical conductivities.

6 *Special Theory of Relativity.*—Newtonian concept of space and time Inertial system—Electromagnetic theory of light and the theory of relativity; Michelson Morley

experiment—The relativistic conception of space and time—Lorentz transformation and its consequences—(a) Lorentz contraction; (b) Einstein time (c) Einstein's velocity addition theorem; (d) Doppler Effect; and (e) Abersation dilatation; Variation of mass and the principle of the intertia of energy—Relativistic Lagrangian and relativistic Hamiltonian—four vectors.

7 *Wave Machanics.*—Wave corpuscle parallelism and its extension to matter—Interference and diffraction of cathode rays—Experiments of Davisson and Germer and of G.P. Thomson—Wave velocity and group velocity—Heisenberg's Principle of uncertainty and the role of the observer—Reflection and transmission phenomena—The Wave equation of Schroginger and its application to (*a*) a linear oscillator, (*b*) a rigid rotator, (*c*) a plane rotator.

Chemical Physics.

The Gaseous State.—Densities of gases, and vapours—molecular weight—dissociation.

The Liquid state.—Solution, osmotic pressure, lowering of vapour pressure, elevation of boiling point and depression of the freezing point due to the presence of dissolved substances, dissociation and association of dissolved substances.

The Collodal State.—Sols, gels and emulsions. Molecular kinetic behaviour of dissolved substances—the ultracentrifuge. Optical properties of Colloids.

Molecular State of Matter.—Evidence of molecular reality. Number, mass and size of molecules. Molecular form, elements of stereochemistry, structure of simple carbon compounds. Electron diffraction and molecular structure.

Applications of Thermodynomics.—Heat of reaction, Hess's law, Kirchoff's law. Free energy, Gibbs—Helmholtz relation. Thermodynamic potential. Homogeneous equilibria, the reaction isotherm, the reaction isobar and the reaction isochore. Mass law Heterogeneous equilibria. The Distribution law, partition coefficients and their applications.

Thermodynamics of non-ideal solutions, activity. The Phase rule and its applications.

The Third law of Thermodynamics, its application to condensed and uncondensed systems. The chemical constant, sackur—Tetrode formula. Thermal Ionisation Theory.

Reaction Kinetics.—Reaction rates and their theory.

The Solid State.—Amorphous solids and crystals; elements of crystal symmetry, crystal systems, Miller indices, Zones, Zone oxes, goniometry, stereographic projection. Point groups. Space lattices, space groups. Diffraction of X-rays by crystals, the Bragg spectrometer. Crystal structure by the Bragg and the Laue methods. Principles of the other methods of crystal analysis.

Electrochemistry.—Electrolysis, the Faraday. Arrhenious theory, migration of ions, transport numbers. Conductivity of electrolytes. Ostwald's dilution law, osmotic pressure of electrolytes, Strong electrolytes, Interionic attraction theory of electrolytic conduction. Applications of conductivity methods. The activity concept, its interpretation on the basis of the interionic attraction theory. Ionic equilibria. E.M.F. of reversible cells, electrode potentials, Concentration cells, Primary and Secondary cells. Application of E.M.F. measurements-hydrogen ion activity and H, solubility of sparingly soluble salts, transport numbers, potentio metric t'tractions.

Nature of the Chemical Bond.—Valence, modern theories.

Dielectric constant.—Claussins-Mosotti and Debye Equations-Dipole-moments and their determinations. Dipolemoments and physical properties, Applications to determine structure of molecules and intra molecular rotation.

Light Scattering and Raman Effect.—

Molecular Magnetism and its Chemical Significance.

Faraday Rotation.—Verdet constant. Application to determine molecular structure.

Books for Study and Reference

1 Poynting and Thomson—Properties of Matter (Revised Edition).
2 Newman and Searle General Properties of Matter
3 A Wood—Acoustics
4 A.B. Wood—Theory of Sound
5 Lamb—Dynamical Theory of Sound
6 Roberts—Heat and Thermodynamics
7 Saha and Srivastava—Text-book of Heat
8 Jenkins and White—Physical optics
9 Drude Optics
10 Williams—Interperometry
11 Wood—Physical Optics
12 Max Born—Optik
13 Preston—Theory of Light
14 White—Atomic Spectra
15 Ruark and Urey—Atoms, Molecules and Quanta
16 Thomson—Chemical Spectroscopy
17 Sommerfeld—Atomic Structure and Spectral lines
18 Page and Adams—Principles of Electricity
19 Harnwell—Principles of Electricity and Electromagnetism.
20 Richtmyer and Kennard—Introduction to Modern Physics.
21 Hoag and Komff—Modern Physics
22 Jauncey—Modern Physics
23 Max Born—Atomic Physics
24 Joos—Theoretical Physics
25 Frenkel—Wave Mechanics (Elementary Theory)
26 Sommerfeld—Wave Mechanics
27 Eddington—Mathematical Theons of relativity
28 Pauling and Wilson—Quantum Mechanics
29 Planck—Mechanics of deformable bodies
30 Weatherburn—Advanced Vector Analysis
31 Glasstone—Treatise on Physical Chemistry
32 Do —Recent advances in Physical Chemistry
33 Fermi—Thermodynamics
34 Falkenragen—Electrolytes
35 Slater—Reaction Kinetics
36 Glasstone—Electrolytes
37 Pauling—Nature of the Chemical Bond
38 Smythe—Dielectic Constants
39 Clark—Applied X-rays

(*Letter No. E.* 611, *dated* 18*th April* 1952, *from the Education Secretary to Government, Bangalore. The revised syllabus will come into effect from the First Honours Class from June* 1953).

By Order,
C. RANGACHAR,
Registrar.

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OFFICE OF THE PRINCIPAL, GOVERNMENT AYURVEDIC AND UNANI COLLEGE, MYSORE.

Notification.

Following is the list of Register Numbers of successful candidates of the Supplementary Board Examination of the College held in October 1952 :—

Ayurvedic Section.

I YEAR.

Second Class.—1, 3, 4, 6, 7, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25.

II YEAR.

Second Class.—26, 27, 29, 31, 32, 33 and 34.

III YEAR.

Second Class.—35.

IV YEAR.

Second Class.—38, 39 and 40.

Result of 40 (A) withheld.

Unani Section.

I YEAR.

Second Class.—41.

II YEAR.

Second Class.—42.

IV YEAR.

Result of 44 withheld.

C. DWARAKANATH,
Principal.